

example of a suitable network interface is the Intel Pro/100 card, commercially available from Intel Corporation of Santa Clara, California.

Fig. 3 shows another embodiment of a networking device 18' according to the present invention. Networking device 18' typically includes an integrated circuit board 18h. The integrated circuit board contains a bus 18i connecting a network interface 18j, memory 18k, processor 18m with registers 18n, application specific integrated circuit (ASIC) 18o, and mass storage device 18p. Network interface 18j is configured to enable networking device 18' to communicate with remote client 12 via computer network 16 and with server 14 via LAN 20. ASIC 18o typically contains a string matching module 24 configured to implement the methods described below. ASIC 18o, processor 18m, and memory 18k form a controller 18q configured to process HTTP requests. It will be appreciated that networking devices 18, 18' may be stand-alone network appliances or may be integrated into server 14' such as internal networking device 22, described above.

Networking devices 18, 18' are more fully described in co-pending U.S. Patent Applications Serial Nos. 09/680,675, 09/680,997, and 09/680,998, filed October 6, 2000, Nos. 60/239,552 and 60/239,071, filed October 10, 2000, No. 60/287,188, filed April 27, 2002, and No. 60/308,234 filed July 26, 2001, and No. 60/313,006 filed August 16, 2001, the disclosures of each of which are herein incorporated by reference.

String matching module 24 typically is configured to reduce the time it takes to transfer data between remote clients 12 and servers 14. Remote clients 12 and servers 14 communicate through the use of Hypertext Transfer Protocol (HTTP), an

Internet standard based on the exchange of HTTP messages in the forms of requests and responses. HTTP requests and responses include header fields, referred to simply "headers," at the beginning of each HTTP message. These headers require processing or "parsing" by the server, so that the server can appropriately respond to the request.

5 Headers typically are composed of alphabetic characters. According to the HTTP specification (HTTP/1.1, Internet RFC 2616, Fielding et al.), all headers are case-insensitive, meaning that the HTTP protocol does not differentiate between uppercase and lowercase alphabetic characters. The embodiments of the present invention are typically configured to recognize headers from HTTP versions 0.9, 1.0, and 1.1. Examples of these headers include "Cache-control", "Connection", "Date", "MIME-version", "Pragma", "Trailer", "Transfer-coding", "Upgrade", "Via", "Warning", "Accept", "Accept-charset", "Accept-Encoding", "Accept-language", "Authorization", "Expect", "From", "Host", "If-modified-since", "If-match", "If-none-match", "If-range", "If-Unmodified-Since", "Max-forwards", Proxy-authorization", "Range", "Referer", "Referer TE", "User-Agent", "Allow", "Content-encoding", "Content-language", "Content-length", Content-location", "Content-md5", "Content-range", "Content-type", "Expires", "Last-modified", "Accept-Ranges", "Age", "Etag", Location", "Proxy-authenticate", "Retry-after", "Server", "Vary", and "WWW-Authenticate". It should be understood that this list is not exhaustive and that other presently used HTTP headers, as well as new headers included in future versions of HTTP, are within the scope of the present invention.

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